



October 7, 2005

Ms. Jan Palumbo, RCRA Project Manager
United States EPA, Region 10
1200 Sixth Avenue, Mail Stop WCM-121
Seattle, WA 98101

Subject: **Revised Nonaqueous Phase Liquid Investigation Work Plan
J.H. Baxter & Co.'s Arlington Facility
Docket No. RCRA-10-2001-0086**

Dear Ms. Palumbo:

J.H. Baxter & Co., Inc (Baxter) is submitting this Revised Nonaqueous Phase Liquid (NAPL) Investigation Work Plan to the U.S. Environmental Protection Agency (EPA). This Revised NAPL Work Plan incorporates EPA's comments from the *Conditional Approval with Modifications of Nonaqueous Phase Liquid Investigation Work Plan* dated September 7, 2005, and received by Baxter on September 10, 2005. This revised work plan discusses the investigation of light NAPL (LNAPL) and dense NAPL (DNAPL) and collection of samples for chemical analysis.

Background and Objectives

The Baxter Arlington facility occupies approximately 52 acres in Arlington, Washington. The site has been used for wood treating since the late 1960's, and has used oil-based wood treating solutions including creosote and pentachlorophenol. During previous investigations, LNAPL was observed in two shallow wells (MW-12 and MW-13), located in the central portion of the facility (Figure 1). Although Baxter has periodically measured NAPL thickness in these two wells, no investigation has been conducted to evaluate the potential for routine recovery of NAPL.

In addition to the LNAPL observed in MW-12 and MW-13, residual NAPL (i.e., NAPL retained in subsurface soil by capillary forces) was observed in subsurface soil in the Main Treatment Area. A tabular summary of boreholes with observations of residual NAPL or "oily" material is presented in Table 1. Figure 2 shows the locations of wells where NAPL was noted in borehole logs, and the thickness of the soil interval where NAPL was observed.

As part of the Site Investigation and Corrective Measures Study process ongoing at the facility, Baxter has elected to evaluate the potential for systematic extraction of NAPL from existing wells, as discussed with EPA on August 10, 2005. Baxter anticipates that this work will be conducted under the provisions of Paragraph 63 of the Administrative Order on Consent.



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This investigation will include the collection and quantification of recoverable NAPL from MW-12 and MW-13. The primary objective of this investigation is to determine the amount of NAPL that can be recovered, and to collect additional data that will be used for remedial action decisions.

Scope of Work

The proposed NAPL investigation includes periodic water level/NAPL measurements and purging of NAPL from MW-12 and MW-13 using low-volume submersible pumps. NAPL (both LNAPL and DNAPL) depth and thickness measurements will be collected with an electronic interface probe (or equivalent). Following collection of water level/NAPL data from each well, a pump will be placed at the top of the liquid level in the well (or at the bottom of the well if DNAPL is detected). The pump will be operated until all NAPL has been extracted from the well (based on visual observation of the discharge). The extracted fluids will be contained in a five-gallon bucket (or equivalent), and the volume of NAPL and groundwater will be estimated and recorded on field forms.

Initially, each well will be tested on a daily basis for a minimum of one-week. If the NAPL volume recovers to similar volumes within a one-week period, the frequency of testing will be increased. Conversely, if little or no NAPL is recovered in subsequent weeks (with respect to the initial test), the frequency of testing will be decreased.

The wells will be purged of NAPL using dedicated Whale Mini-Purger submersible pump (or equivalent). The Whale pumps are low-cost, single stage, battery operated pumps that can lift fluids from depths up to 60 feet. While these pumps are not specifically designed to remove NAPL or last in a corrosive environment, they are inexpensive and can be readily replaced if necessary. If the NAPL is too viscous to be effectively removed from the wells using the Whale pump, an alternate pump or stainless steel bailer will be deployed. EPA will be advised if any significant changes in the investigation program are necessary.

NAPL extraction data will be recorded in the field, including depth to water, NAPL thickness, purging time, and volumes of water and NAPL extracted. An example form is presented as Figure 3.

During the course of the investigation, one sample of NAPL will be collected and submitted for laboratory analysis of semivolatile organic compounds and hydrocarbon identification by EPA Method 8270C and NWTPH-HCID, respectively. In addition, specific gravity measurements will be conducted on the NAPL using hydrometers at the onsite laboratory.

Fluids extracted from the wells will be temporarily stored in five-gallon buckets with lids (or equivalent). The recovered fluids will be transferred to the onsite process water treatment system immediately after each testing event. All containers used in the investigation will be properly labeled and closed, and stored in a designated hazardous waste storage area. Records will be maintained as to the quantity of hazardous waste recovered during the test, and the volume recovered will be included with the annual Washington State Dangerous Waste Report.

Following a minimum of eight weeks of testing, the data will be examined to assess the viability of installing a semi-permanent NAPL extraction system, periodic NAPL evacuation, or additional extraction wells. Based on preliminary evaluation of data, additional testing may be conducted at the facility. Pending final evaluation of the data, Baxter will meet EPA to discuss further actions at the facility.

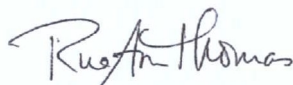
All field work will be conducted in accordance with the existing Site Investigation Health and Safety Plan.

Reporting

All NAPL investigation activities, quantities of NAPL extracted, graphs showing time versus extraction rate and/or recovery rate, and laboratory data will be summarized and presented to EPA in a letter report. NAPL extraction data may be also presented to EPA if any significant endpoints are reached which require consultation with EPA.

We trust this revised work plan meets the intent of your *Conditional Approval with Modifications* letter dated September 7, 2005. In accordance with your letter, this NAPL investigation was initiated on September 22, 2005. Please do not hesitate to contact Stephen Barnett of Premier at (503) 241-8172, or me at (541) 689-3801 if you have any questions or comments.

Sincerely,



RueAnn Thomas
Environmental Programs Director

cc: Georgia Baxter, J. H. Baxter & Co.
Mary Larson, J. H. Baxter & Co.
Rene Fuentes, EPA Region 10
J. Stephen Barnett, Premier Environmental Services, Inc.



LEGEND

- NAPL Recovery Well Location
- Monitoring Well Location
- Approximate Site Boundary

0 200 400 Feet

Figure 1. NAPL Recovery Wells

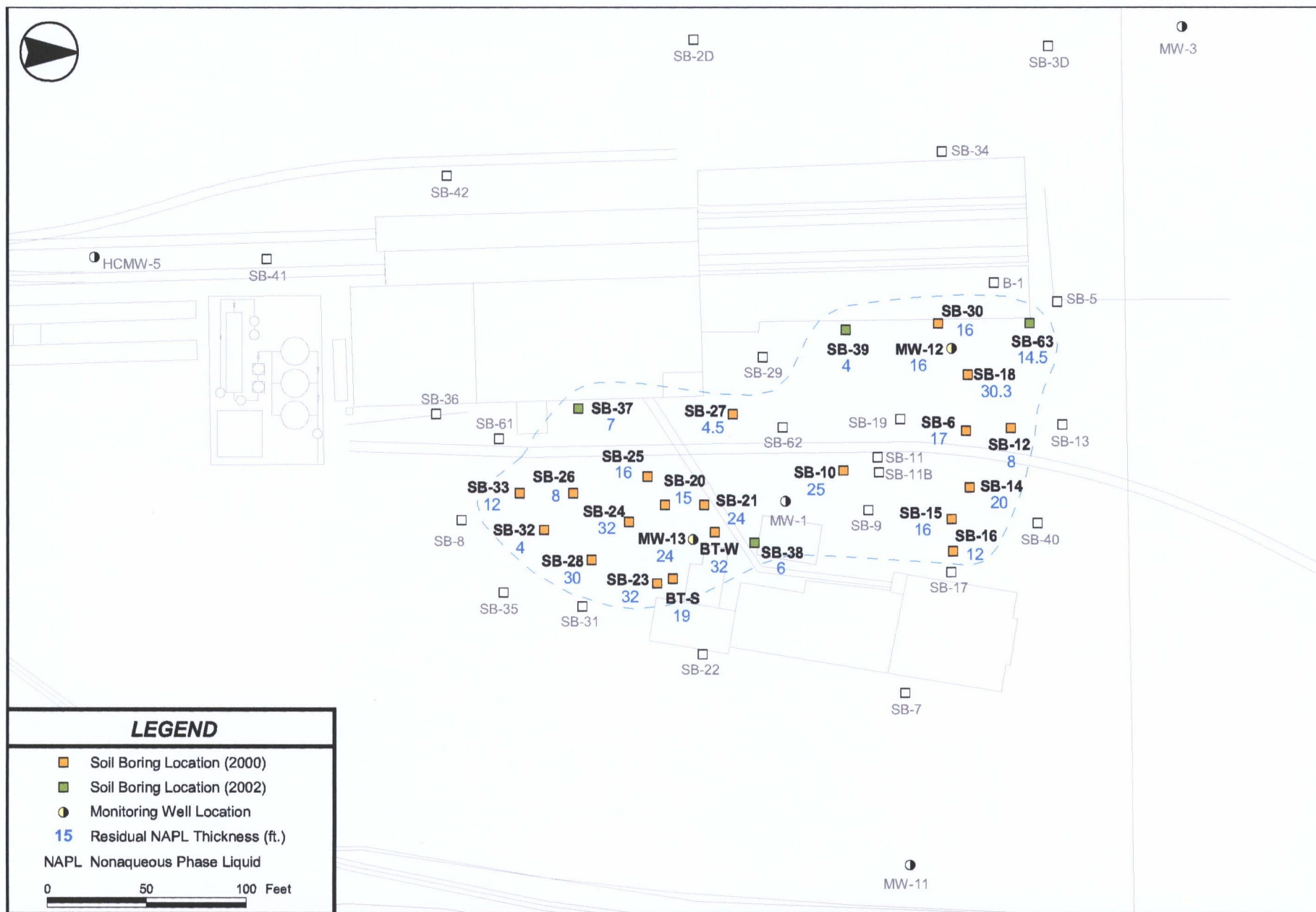


Figure 2. Residual NAPL Thickness Map

NAPL RECOVERY FORM



WELL ID: _____

FACILITY: Arlington, WA Facility

WELL DEPTH: _____

WELL DIAMETER: _____

PURGING METHOD: _____

[illegible]

FIGURE 3

Table 1. Summary of residual NAPL observed in boreholes

Borehole I.D.	Inferred Residual NAPL Interval (ft bgs)	Depth to Residual NAPL (ft)	Inferred Residual NAPL Thickness (ft)	Remarks
BT-W	3 - 35	3	32	Sheen observed from 3 to 35 ft. Oily droplets at 12 ft and 25 to 35 ft.
BT-S	15 - 34	15	19	Sheen observed from 15 to 17 ft. Sheen w/ oily droplets observed from 17 to 34 ft.
SB-6	15 - 32	15	17	Oily droplets at 15 ft. Sheen observed from 18-34 ft.
SB-10	4 - 29	4	25	Cedar-like odor and sheen observed from 4 to 29 ft.
SB-12	16 - 24	16	8	Cedar-like odor and sheen observed from 16 to 24 ft.
SB-14	4 - 24	4	20	Cedar-like odor and sheen observed from 4 to 24 ft.
SB-15	1 - 16	1	16	Cedar-like odor and sheen observed from 1 to 16 ft.
SB-16	1 - 12	1	12	Cedar-like odor and sheen observed from 1 to 12 ft.
SB-18	1 - 30.3	1	30.3	Cedar-like odor and sheen observed from 1 to 24 ft. Sheen observed from 30 to 30.3 ft.
SB-20	4 - 30	4	26	Sheen observed from 4 to 8 ft. Cedar-like odor and sheen observed from 15 to 30 ft.
SB-21	12 - 36	12	24	Cedar-like odor and sheen observed from 12 to 36 ft. Dark brown oil observed from 27.5 to 27.7 ft., 28.4 to 29.2 ft., and 32.9 to 33 ft.
SB-23	1 - 32	1	32	Cedar-like odor and sheen observed from 1 to 4 ft., 10 to 20 ft., and 24 to 32 ft. Dark brown oil observed from 27.5 to 28 ft. and 30.5 to 32 ft.
SB-24	1 - 32	1	32	Cedar-like odor detected from 1 to 32 ft. Sheen observed from 16 to 32 ft. Dark brown oil observed from 31.5 to 32 ft.
SB-25	16 - 32	16	16	Cedar-like odor detected from 1 to 32 ft. Sheen observed from 16 to 32 ft. Dark brown oil observed from 27 to 30.5 ft. and 31.2 to 32 ft.
SB-26	20 - 28	20	8	Cedar-like odor and sheen observed from 20 to 28 ft.
SB-27	27.5 - 32	27.5	4.5	Cedar-like odor and sheen observed from 27.5 to 32 ft. Dark brown oil observed from 30.5 to 31.3 ft. and 31.8 to 31.9 ft.
SB-28	2 - 32	2	30	Cedar-like odor and sheen observed from 2 to 8 ft., 12 to 16 ft., and 24 to 32 ft. Dark brown oil observed from 27 to 31.5 ft.
SB-30	20 - 36	20	16	Cedar-like odor detected from 4 to 36 ft. Sheen observed from 20 to 36 ft. Dark brown oil observed from 33 to 36 ft.
SB-32	24 - 28	24	4	Dark brown oil observed from 24 to 28 ft.
SB-33	20 - 32	20	12	Cedar-like odor and sheen observed from 20 to 32 ft. Dark brown oil observed from 24 to 26.5 ft.
MW-12	14 - 30	14	16	Residual NAPL observed from 14 to 30 ft. Odor detected from 30 to 32 ft.
MW-13	14 - 38	14	24	Residual NAPL observed from 14 to 18 ft. Mobile NAPL observed from 18 to 36 ft.
SB-37	22 - 29	22	7	Residual NAPL observed from 36 to 38 ft.
SB-38	16 - 22	16	6	Residual NAPL observed from 22 to 29 ft.
SB-39	10 - 12	10	2	Residual NAPL observed at 16 ft. and from 20 to 26 ft.
SB-63	13.5 - 28	13.5	14.5	Residual NAPL observed from 10 to 12 ft.
				Residual NAPL observed from 13.5 to 28 ft.

Notes:

bgs - below ground surface

ft. - feet

NAPL - Nonaqueous Phase Liquid